UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101

DEC 0 2 1998

MEMORANDUM

SUBJECT: National Remedy Review Board Recommendations for the St. Louis Downtown Superfund Site

FROM: Michael J. Sanderson, Director
Superfund Division

TO: Bruce K. Means, Chair
National Remedy Review Board

This memorandum describes how we have addressed the recommendations made by the Board pursuant to its review of the proposed remedial action for the St. Louis Downtown Site (SLDS) of the St. Louis FUSRAP sites.

The Environmental Protection Agency (EPA) Region 7 worked closely with the U.S. Army Corps of Engineers (Corps) St. Louis District to develop a Record of Decision (ROD) for SLDS that adequately addressed all EPA comments, including those made by the National Remedy Review Board (RRB). The cleanup approach presented in the ROD was developed in consultation with the OERR Region 5/7 Center. Region 7 signed the ROD August 27, 1998, after ensuring that all remedy selection concerns had been resolved. The Board's comments are addressed below under the same headings and in the same order presented in your June 30, 1998, memorandum.

Extent of Cleanup

Comment: The information presented to the Board did not demonstrate that the site had been sufficiently characterized. In addition, the action addresses only radiologic contamination and/or co-located non-radiological contamination(i.e., MED/AEC soils), even though there is other non-radiologic contamination on

site. The Board recommends that EPA Region 7 and the State work with the Corps and other potentially responsible parties to thoroughly characterize the site and address all contaminants of concern (COCs), MED/AEC or otherwise, revealed by that characterization, including those that may affect ground water and/or subsurface soils.

Response: Region 7's agreement with the Department of Energy (DOE) and subsequently the Corps was designed to enable response under CERCLA to a specific release. There was no intent to suggest that this was the final or only appropriate action for the Mallinckrodt facility or the industrial complex. Language was added to the ROD to clarify the scope of this action. We are informed with regard to two additional actions: the Resource Conservation and Recovery Act (RCRA) facility investigation being undertaken pursuant to Mallinckrodt's hazardous waste management permit, and the action to terminate Mallinckrodt's Nuclear Regulatory Commission (NRC) license. It is our understanding and expectation that all known or potential releases associated with Mallinckrodt operations are being addressed under one of these three authorities. Region 7 will increase its efforts to coordinate with the State, the Corps, the NRC, Mallinckrodt Chemical, and others to ensure that these efforts are complementary and comprehensive.

Comment: The Corps should consider simple modeling/evaluation of the subsurface soils and contaminated ground water to evaluate the potential effects of COCs that would remain after the planned excavation. The Region should consult the "Soil Screening Guidance: Technical Background Document" (EPA/540/R-95/128) Section 2.5 (in particular, the discussions on dilution/attenuation and equations (22) and (24) for determining soil-water partitioning) for further guidance.

Response: As suggested, an evaluation of the potential effects of residual contamination on groundwater was performed. Calculations were performed using the "Soil Screening Guidance: Technical Background Document" (EPA/540/R-

95/128). Using the default parameters in equation 22, a range of values for concentrations of uranium, arsenic, and cadmium in soil has been calculated. The retardation factor (Kd) is the only parameter that has a major effect on the calculation, and it typically ranges over several orders of magnitude for most metals depending on the cation exchange capacity of the soil and the valence state of the metal. The acceptable values for all three compounds range from just below background concentrations to two orders of magnitude above background. The estimated average soil concentrations left at the SLDS after cleanup to the criteria specified in the ROD fall generally in the middle of the range for each constituent. However, as made clear in the guidance, the assumptions used to establish the default conditions for equation 22 are very conservative. Therefore, further evaluation is being performed using empirical evidence to examine how the assumptions would change for actual site conditions and to develop site-specific Kds.

Comment: There are several parties and jurisdictions involved in the site cleanup, and both RCRA and CERCLA authorities apply to portions of the site. Recognizing this, EPA should take special care to ensure that all contaminant threats are addressed under the appropriate statutory authorities in appropriate sequence.

Response: See first bullet above.

Cleanup Approach

Comment: The Corps' cleanup action proposes a radiological contamination cleanup level of 15 pCi/g below a six inch soil depth. OSWER Directive 9200.4-25 "Use of Soil Cleanup Criteria in 40 CFR 192 as Remediation Goals for CERCLA Sites" (February 12, 1998) recommends that, for situations such as those encountered at this site, cleanups achieve soil levels of 5 pCi/g at depth. This guidance, however, acknowledges that it may be appropriate in certain situations to use supplemental standards or waivers of "applicable or relevant and

appropriate requirements" (ARARs) to deviate from the 5 pCi/g goal. The Board recommends that the Corps describe fully its rationale for selecting a remediation goal other than 5 pCi/g in the context of Directive 9200.4-25 and the NCP to demonstrate that its cleanup levels are protective.

Response: The cleanup rationale was redeveloped to be consistent with OSWER Directive 9200.4-25 "Use of Soil Cleanup Criteria in 40 CFR 192 as Remediation Goals for CERCLA Sites". Identification of the 15 pCi/g subsurface standard as ARAR is justified in this case based on the finding that contaminant distribution is sufficiently similar to that found at uranium mill tailing sites designated under Section 102(a)(1) of UMTRCA (Title I sites), i.e., there is little subsurface contamination ranging from 5 to 30 pCi/g and application of the 15 pCi/g criterion to the subsurface is expected to result in essentially the same degree of cleanup as would be achieved using the 5 pCi/g criterion. Residual concentration data from prior cleanup actions at the SLDS is presented in the ROD to support this expectation.

Comment: The cleanup strategy as presented to the Board relies extensively on Nuclear Regulatory Commission (NRC) rule 10 CFR part 20, subpart E, and the "as low as reasonably achievable" concept contained therein. It also relies on surface soil cleanup criteria based on DOE guidance. Both the NRC rule and DOE guidance employ dose limits that EPA generally has found to be not protective (see OSWER Directive 9200.4-18 "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination" (August 22, 1997). The Board recommends that the Corps instead develop the cleanup strategy using the nine remedy selection criteria presented in the NCP.

Response: The derivation of site-specific cleanup levels was redeveloped to be consistent with the National Contingency Plan (NCP). Reference to the NRC's ALARA process and DOE guidance are not included in the ROD.

Comment: It is important for Records of Decision to address all remedy components necessary to maintain protectiveness over time (e.g., operation and maintenance, monitoring, institutional controls). The material presented to the Board was incomplete in this regard. The Board recommends that the EPA, state, and Corps clarify how these components will be addressed in this and other cleanup actions at the site to ensure long-term protectiveness.

Response: The ROD contains a more thorough and specific description of what is required with regard to operation and maintenance, long-term monitoring, and institutional controls than was contained in the materials presented to the Board.

Use of Treatment Technologies

Comment: The NCP sets forth program expectations to treat principal threats wherever practicable. Another expectation is to contain low level threats because treatment for these wastes may not be cost effective or practicable. The NCP also states that, for many sites, EPA will use a combination of treatment and containment. The Board recommends that the Corps include in the decision documents for this site information indicating whether wastes at the site constitute principal threats (e.g., radiological hot spots), and an assessment of whether treatment would be practicable for any such wastes.

Response: The concept of principal threat waste in the NCP is provided to identify wastes that are typically treated to reduce or eliminate toxicity, mobility, and volume. The concept differentiates principal threat waste from "low-level" threat waste which is typically contained. As in this case, low-level waste may still present a

significant, unacceptable risk that must be addressed. Source materials at the SLDS are considered "low-level" threat wastes due to the generally low concentration and low mobility of the contaminants. Even the "hot spots" or areas of highest concentration are not considered principal threats based on usage of the general rule of thumb provided in the *Principal Threats Guidance*. In addition, a range of site-specific treatability study and laboratory testing found treatment for stabilization and volume reduction purposes to be of limited effectiveness in this case. At SLDS, onsite containment of the low-level threats is not compatible with site redevelopment plans or community expectations, leading to selection of an offsite containment remedy.

Comment: The Board encourages the Corps to continue to explore ways to reduce the volume of contaminated waste to be excavated, thus reducing the costs of offsite disposal.

Response: The Corps has indicated the intention to continue to explore technologies that might be used to reduce the volume of contaminated waste to be excavated, and language to this effect was included in the ROD.

Region 7 appreciates the Board's input to the remedy selection process for SLDS. We also appreciate the efforts of the Region 5/7 Accelerated Response Center at Headquarters in assisting us with the development of the ROD. We look forward to working with you on the remedy for the balance of the St. Louis FUSRAP sites.

Please call me if you have any questions, or would like further information.

cc: Stephen Luftig
James Woolford
Bonnie Gitlin